

In the claims:

For the Examiner's convenience, Applicants present all claims with status indicator in compliance with the practice guidelines for making amendments under 37 C.F.R. §1.121(c) (1).

Please cancel claims 1, 3-13, 36-38, 49-56, 58-65, 73, 74, 77-79, 132-159 and 163-168 without prejudice.

Please amend claims 39, 40 and 160 and add new claims 169-180 as follows:

1-38. (CANCELLED)

39. (CURRENTLY AMENDED) A method of differentiating an an-clonally isolated adipose-derived stem cell into cells of any two or more of a fat cell, a bone cell, a cartilage cell, and a muscle cell comprising culturing the cell in any of adipogenic, osteogenic, chondrogenic, and myogenic morphogenic medium under conditions sufficient for the cell to differentiate.

40. (CURRENTLY AMENDED) The method of claim 39, wherein the medium is any of adipogenic, chondrogenic, cardiogenic, dermatogenic, embryonic, fetal, myogenic, osteogenic, or stromogenic media.

41. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the morphogenic medium is an adipogenic medium and the cell is monitored to identify adipogenic differentiation.

42. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the morphogenic medium is a chondrogenic medium and the cell is monitored to identify chondrogenic differentiation.
43. (CANCELLED)
44. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the morphogenic medium is a myogenic medium and the cell is monitored to identify myogenic differentiation.
45. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the morphogenic medium is an osteogenic medium and the cell is monitored to identify osteogenic differentiation.
46. (CANCELLED)
47. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the cell differentiates in vitro.
48. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the cell differentiates in vivo.
- 49-56. (CANCELLED)
57. (PREVIOUSLY PRESENTED) The method of claim 39, wherein the cell is within a defined cell population.
- 58-159. (CANCELLED)

160. (CURRENTLY AMENDED) A method of inducing the differentiation of an clonally isolated adipose derived stem cell into cells of any two or more of a fat cell, a bone cell, a cartilage cell, and a muscle cell comprising culturing the cell in any of adipogenic, osteogenic, chondrogenic, and myogenic morphogenic suitable medium effective to induce differentiation under suitable differentiation conditions.

161. (PREVIOUSLY PRESENTED) The method of claim 160 wherein said medium is a conditioned medium of a specific cell type.

162. (PREVIOUSLY PRESENTED) The method of claim 160, further comprising co-culturing the cell with a cell of desired lineage.

163-168. (CANCELLED)

169. (NEW) The method of claim 39, wherein the muscle cell is any of skeletal muscle, cardiac muscle or smooth muscle.

170. (NEW) The method of claim 39, wherein the muscle cells express muscle specific proteins.

171. (NEW) The method of claim 170, wherein the muscle specific proteins are myoD or myosin heavy chain.

172. (NEW) The method of claim 39, wherein the cell differentiates into a precursor of a fat cell, a bone cell, a cartilage cell or a muscle cell.

173. (NEW) The method of claim 39, wherein any of adipogenic, osteogenic, chondrogenic, and myogenic morphogenic medium is supplemented with growth factors, cytokines or extracellular matrix materials.
174. (NEW) The method of claim 39, further comprising introducing the cells into a biologically compatible lattice.
175. (NEW) The method of claim 174, wherein the lattice comprises a mesh, sponge, or hydrogel.
176. (NEW) The method of claim 174, wherein the lattice is homopolymeric or heteropolymeric.
177. (NEW) The method of claim 174, wherein the lattice comprises hormones.
178. (NEW) The method of claim 174, wherein the lattice comprises extracellular matrix materials such as fibronectin, laminin and collagen.
179. (NEW) The method of claim 57, wherein the cell is within a heterogeneous population of clonally isolated cells.
180. (NEW) The method of claim 57, wherein the cell is within a homogeneous population of clonally isolated cells.